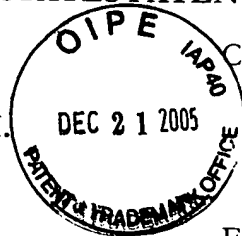


IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Susan D. ALLEN and Sergey I.
KUDRYASHOV

Confirmation No.: 1046

Serial No.: 10/626,880

Examiner: ALLYSON PURNELL

Filed: July 25, 2003

Customer No.: 34610

For: METHOD AND APPARATUS FOR REMOVING MINUTE PARTICLE(S)
FROM A SURFACEINFORMATION DISCLOSURE STATEMENTU.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. One copy of each reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

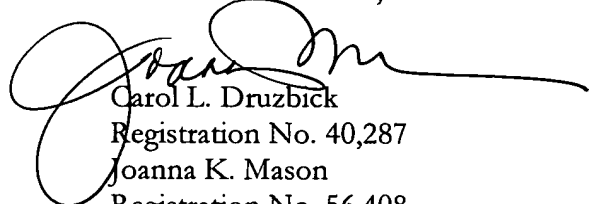
Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the indicated date. Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search has been made, that information cited in the statement is considered to be and/or is material to patentability, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that was cited or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. §120. 1138 OG 37, 38 (May 19, 1992).

- ☒ 1. This Information Disclosure Statement is being filed (i) within three months of the U.S. filing date of a U.S. application other than a CPA continued prosecution application under §1.53(d) OR (ii) within three months of the date of entry of the national stage as set forth in §1.491 in an international application OR (iii) before the mailing date of a first Office Action on the merits OR (iv) before the mailing of a first Office Action after the filing of a Request for continued examination under §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).
- ☐ 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).
- ☐ a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(1).
- ☐ b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart

foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

- ☐ c. Attached is our check no. _____ in the amount of \$180.00 in payment of the fee under 37 C.F.R. §1.17(p). Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached.
- ☐ 3. This Information Disclosure Statement is being filed after the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee. Attached is our check no. _____ in the amount of \$180.00 in payment of the fee under 37 C.F.R. §1.17(p). Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached. 37 C.F.R. §1.97(d).
- ☐ a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(1).
- ☐ b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).
- ☒ 4. Relevance of the non-English language reference LL is discussed in the present specification.
- ☒ 5. To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

FLESHNER & KIM, LLP


Carol L. Druzbeck
Registration No. 40,287
Joanna K. Mason
Registration No. 56,408

Correspondence Address:
P.O. Box 221200
Chantilly, VA 20153-1200
Telephone: (703) 766-3701
Date: December 21, 2005

Please direct all correspondence to Customer Number 34610

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LIST OF ART CITED BY APPLICANT

(PTO-1449)

ATTY. DOCKET NO.
ASU-0001APPLN. SERIAL NO.
10/626,880APPLICANT(S)
Susan D. ALLEN and Sergey I. KUDRYASHOVFILING DATE
7/25/2003

GROUP

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	*PATENT NO.	*ISSUE DATE	*INVENTOR NAME	CLASS	SUBCLASS	FILING DATE
	4,720,621	10/19/04	Langen	134	1	7/23/01
	4,752,668	6/21/88	Rosenfield et al.	219	121	4/28/86
	5,023,424	6/11/91	Vaught	219	121.6	1/22/90
	5,151,135	9/29/92	Magee et al.	134	1	9/15/89
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	*PATENT APPLN. PUB. NO.	*PUB. DATE	*APPLICANT	CLASS	SUBCLASS	

U.S. PATENT APPLICATIONS

	*APPLN. NO.	*FILING DATE	*INVENTOR	CLASS	SUBCLASS	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No

LIST OF PRIOR ART CITED BY APPLICANT

(PTO-1449)

OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)

A	"Laser cleaning of silicon surface with deposition of different liquid films", Y.F. Lu, et al., Applied Surface Science 138-139 (1999) 140-144
B	"Optical and Acoustic Study of Nucleation and Growth of Bubbles at a Liquid-Solid Interface Induced by Nanosecond-Pulsed-Laser Heating", O. Yavas, et al., Applied Physics A 58, 407-415(1994)
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D	"Phase Separation in Fluid Systems by Spinodal Decomposition: A Molecular-Dynamics Simulation", Farid F. Abraham, et al., Physical Review Letters, Volume 36, Number 5, 2 February 1976
E	"Physicochemical and Engineering Fundamentals and Applications:", Sjoerd van Stralen, et al.

F	"CRC Handbook of Chemistry and Physics", David R. Lide, Ph.D., Handbook of Chemistry and Physics, CRC Press LLC, 79 th Edition 1998-1999
G	"Cavitation and tension in liquids.", Matsumoto Y., et al., IOP Publishing Ltd., 1987
H	"Methods for Surface Particle Removal: A Comparative Study", Juan Bardina
I	"Explosive Shocks in Air", Gilbert Ford Kinney, The Macmillan Company, New York
J	"Laser-assisted particle removal from silicon surfaces", S.J. Lee, et al., Center for Laser Science and Engineering, The University of Iowa, Iowa City, IA 52242, USA
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O	"Physical Chemistry of Surfaces", Arthur W. Adamson, Fifth Edition, A Wiley-Interscience Publication, John Wiley & Sons, Inc.
P	"Physisorption of Cyclohexane on a SiO ₂ /Si Substrate: Evidence of a Wetting Transition above the Triple Point", Wolfgang H. Lawnik, et al., Langmuir 1995, 11, 3075-3082
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R	"Adhesion between Nanoscale Rough Surfaces", Yakov I. Rabinovich, et al., Journal of Colloid and Interface Science 232, 17-24 (2000)
S	"Optical probing of the temperature transients during pulsed-laser induced boiling of liquids", Hee K. Park, et al., © 1996 American Institute of Physics. [S0003-6951(96)04805-X]
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V	"Explosive Boiling of Water Films Adjacent to Heated Surfaces: A Microscopic Description", Yusheng Dou, et al., J. Phys. Chem, A 2001, 105, 2748-2755
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Z	"Defect characteristics of optical surfaces using pulsed laser damage methods", J.O. Porteus, et al., Optical Engineering /October 1986, Vol. 25 No. 10/ 1171
AA	"Laser-assisted micron scale particle removal", K. Imen and S.D. Allen, Appl. Phys. Lett. 58(2), 14 January 1991
BB	"Efficient pulsed laser removal of 0.2 μ m sized particles from a solid surface", W. Zapka and W. Ziemlich, App. Phys. Lett. 58(20), 20 May 1991
CC	"CO ₂ laser assisted particle removal threshold measurements", S.J. Lee, et al., Appl. Phys. Lett. 61(19), 9 November 1992
DD	"Removal of small particles from surfaces by pulsed laser irradiation: observations and a mechanism", J.D. Kelley, et al., SPIE Vol. 1415 Modeling and Simulation of Laser Systems II (1991)/211
EE	"Laser-cleaning techniques for removal of surface particulates", Andrew C. Tam, et al., J. Appl. Phys. 71(7), 1 April 1992
FF	"Bubble nucleation and pressure generation during laser cleaning of surfaces", O. Yavas, et al., Appl. Phys. A 64, 331-339 (1997)
GG	"Universal threshold for the steam laser cleaning of submicron spherical particles from silicon", M. Mosbacher, et al., Appl. Phys. A 70, 669-672 (2000)

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SHEET 3 OF 3

HH	"Optical Reflectance and Scattering Studies of Nucleation and Growth of Bubbles at a Liquid-Solid Interface Induced by Pulsed Laser Heating", Oguz Yavas and Paul Leiderer, Vo. 70, Number 12, Physical Review Letters, 22 March 1993
II	"The modeling of excimer laser particle removal from hydrophilic silicon surfaces", X. Wu, et al., Journal of Applied Physics, Vo. 87, Number 8, 15 April 2000 © 2000 American Institute of Physics
JJ	"Modeling laser-assisted particle removal using molecular dynamics", K.M. Smith, et al., Appl. Phys. A 00, 1-6 (2003)
KK	"Blustered Ensemble Averaging: A Techniques for Visualizing Qualitative Features of Stochastic Simulations", Kayne M. Smith, et al.
LL	Grigor'ev et al, Physical Quantities, Energoatomizdat, Moscow (1991)
EXAMINER	
DATE CONSIDERED	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.